

Remarks

It is respectfully submitted that the Disposition of Claims in the Office Action Summary incorrectly lists the pending claims under item 4 and the withdrawn claims under item 4a. More specifically, claims 224, 497, and 498 were canceled in a Response filed on 29 August 2002, however, claim 496 was never withdrawn by the Applicants. Accordingly, claims 223, 225 – 237, 247 – 250, 496, and 499 – 510 are currently pending. A listing of the claims is provided. Correction of the Disposition of Claims in the next Office communication is requested.

Claim 223 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Morishita et al. (US Pat. No.: 5,757,175). Specifically, the Examiner states:

As to claim 223, Morishita et al. discloses in figures 17 and 19 a voltage reference circuit responsive to an external voltage (ExtVcc) for supplying a reference voltage (INVcc), comprising: an active reference circuit (VGR, figure 19) for receiving the external voltage (Vref) and for producing a reference signal having a desired relationship with the external voltage, said active reference circuit comprising a current source (TP4) utilizing a current mirror for providing current to a diode stack (CVC) having an adjustable impedance; and a unity gain amplifier (CMP, DT) responsive to said reference signal for producing the reference voltage.

Claim 223 has been amended to recite an active reference circuit for receiving the external voltage and for producing a reference signal "wherein said reference signal is dependent upon said external voltage." Support for the instant amendment is found in the specification on page 98, lines 2 – 19 and in FIG. 36B. Referring to FIG. 36B, the slope of the reference voltage (Vcca) within the operating range (i.e., region 2) is moderately dependent upon the slope of the external voltage (Vccx) (i.e., the slope of Vcca is not completely flat). It should be noted that the slope of the reference voltage (Vcca) is zero (i.e., completely flat) within the operating region when the reference voltage (Vcca) is independent of the external voltage (Vccx). As stated on page 98, the reference circuit as claimed improves performance characterization by providing a simple means for margin testing.

On the contrary, it is respectfully submitted that the reference voltage generating circuit (VRG) disclosed by Morishita "generates a reference voltage Vref independent of the external power supply voltage EXVcc when the voltage EXVcc is at least a prescribed level." (Col. 2, lines 16 – 20.) Additionally, Morishita states:

In FIG. 19, reference voltage generating circuit VRG includes a constant current generating circuit CCG operating with the external power supply voltage EXVcc and the ground voltage Vss as both operating power supply voltages for producing constant current I independent of the external power supply voltage EXVcc, a current/voltage converting circuit CVC for converting current I from constant current generating circuit CCG into voltage to produce the reference voltage Vref, and a start-up circuit STC for activating the constant current

generating operation of constant current generating circuit CCG when the external power supply voltage EXVcc attains a prescribed potential level.

(Col. 3, lines 31 – 45.) Thus, it is respectfully submitted that Morishita does not disclose an active reference circuit for producing a reference signal “wherein said reference signal is dependent upon said external voltage.”

For the reasons discussed above, it is believed that claim 223 is in condition for allowance. Accordingly, it is respectfully requested that the rejection of claim 223 pursuant to §102(e) in view of Morishita be withdrawn.

Claims 225 – 227 and 496, 499, and 500 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Morishita in view of Furumochi (US Pat. No.: 5,473,277). Claims 225 – 227 are dependent from claim 223. As discussed above, Morishita does not disclose an active reference circuit for producing a reference signal “wherein said reference signal is dependent upon said external voltage” as recited in claim 223. It is respectfully submitted that Furumochi fails to supply the missing teachings. Accordingly, it is believed that claims 225 – 227 are in condition for allowance and it is respectfully requested that the rejection of claims 225 – 227 be withdrawn..

Claim 496, like allowable claim 223, is amended to recite “wherein said signal is dependent upon said external voltage.” For the same reasons discussed above in conjunction with claim 223, it is believed that claim 496 is in condition for allowance. Claims 499 and 500 depend from allowable claim 496, and thus, are also in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 496, 499, and 500 be withdrawn.

Claims 228 – 231 and 501 – 504 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Morishita in view of Park (US Pat. No.: 5,448,199). Claims 228 – 230 and claims 501 – 503 depend from allowable claims 223 and 496, respectively. As discussed above, Morishita does not disclose an active reference circuit for producing a reference signal “wherein said reference signal is dependent upon said external voltage” as recited in claims 223 and 496. Furthermore, it is respectfully submitted that Park fails to supply the missing teachings. Thus, it is believed that claims 228 – 230 and 501 – 503 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 228 – 230 and 501 – 503 be withdrawn.

Although the Examiner stated that independent claims 231 and 504 were rejected under 35 U.S.C. §103(a) as being unpatentable over Morishita in view of Park, the Examiner does not provide a detailed explanation of the rejection. Instead, the Examiner provides a detailed rejection for claims 231 and 504 pursuant to §103(a) as being unpatentable over Tsay et al (US Pat. No.: 6,127,881) in view of Morishita. Applicants address the rejection based on Tsay et al. below and

respectfully request clarification as to whether claims 231 and 504 stand rejected pursuant to §103(a) as being unpatentable over Morishita in view of Park, and if so, the reasons for the rejection.

Claims 231 and 504 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Tsay et al (US Pat. No.: 6,127,881) in view of Morishita. As to claims 231 and 504, the Examiner stated:

Tsay's figure 2 shows a multiplier circuit for generating a voltage signal higher than a reference voltage (Vref). Thus, Tsay's figure 2 shows all limitations of the claims except for detail of the reference circuit. However, Morishita's figures 17 and 19 shows a reference circuit comprising an active reference circuit (VRG) and a unity gain circuit (CMP, DT). Morishita's figure 17 having the advantage of generating a stable reference signal. Therefore, it would have been obvious to one having ordinary skill in the art to use Morishita's figure 17 for Tsay's reference circuit for the purpose of having a stable reference signal.

Claims 231 and 504 are both amended to recite "wherein said signal is dependent upon said external voltage." As discussed above, Morishita does not disclose an active reference circuit for producing a reference signal "wherein said reference signal is dependent upon said external voltage." Additionally, it is respectfully submitted that Tsay fails to supply the missing teachings. Thus, it is believed that claims 231 and 504 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 231 and 504 be withdrawn.

Claims 232 – 233 and 505 – 506 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Hayakawa (U.S. Pat. No.: 5,184,031) in view of Tsay and Morishita. Claims 232 – 233 and 505 – 506 are dependent from claims 231 and 504, respectively. It is respectfully submitted that Hayakawa fails to supply the missing teachings as discussed above in conjunction with claims 231 and 504. Thus, it is believed that claims 232 – 233 and 505 – 506 are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 232 – 233 and 505 – 506 be withdrawn.

Claims 234 – 237, 247 – 250, and 507 – 510 stand rejected under 35 U.S.C. §103 (a) as being unpatentable over Hayakawa in view of Tsay, Morishita and Park. The Examiner states:

The combination above shows all limitations of the claims except for a pullup stage for pulling up the reference voltage so as to substantially track the external voltage when the external voltage exceeds a second predetermined value. However, Park's figure 3 shows a reference circuit having a pullup stage (100) for pulling up the reference voltage in a burn-in mode to check long term performance of the circuit under condition of high voltage and high temperature. Therefore, it would have been obvious to one having ordinary skill in the art to connect Park's circuit 100, wherein circuit 100 is the "pullup stage", to the output of the Morishita's unity gain amplifier for the purpose to check long term performance of the circuit under condition of high voltage and high temperature burn-in mode.

As discussed above, Hayakawa in view of Tsay, and Morishita fails to teach the use of an active reference circuit for producing a reference signal "wherein said reference signal is dependent upon said external voltage" as recited in claims 231 and 504. It is respectfully submitted that Park fails to supply the missing teachings. Thus, it is believed that claims 234 - 237 and 507 - 510, which depend from allowable claims 231 and 504, respectively, are in condition for allowance. Accordingly, it is respectfully requested that the rejection of claims 234 - 237 and 507 - 510 be withdrawn.

Additionally, claim 247 is amended to recite "wherein said reference signal is dependent upon said external voltage." Thus for the same reasons discussed above in conjunction with claims 234 - 237 and 507 - 510, it is believed that claim 247 is in condition for allowance. Claims 248 - 250 are dependent from allowable claim 247. Accordingly, it is respectfully requested that the rejection of claims 247 - 250 be withdrawn.

New claims 511 - 515 have been added to recite "wherein said reference signal is dependent upon said external voltage within a predetermined testing margin of error." Claims 511, 512, 513, 514, and 515 are dependent from allowable claims 223, 231, 247, 496, and 504, respectively. For the same reasons discussed above in conjunction with claims 223, 231, 247, 496, and 504, it is believed that claims 511 - 515 are in condition for allowance.

Applicants have made a diligent effort to place the claims in condition for allowance. Accordingly, a Notice of Allowance for claims 223, 225 - 237, 247 - 250, 496, and 499 - 515 is respectfully requested. If the Examiner is of the opinion that the instant application is in condition for disposition other than through allowance, the Examiner is respectfully requested to contact applicants' attorney at the telephone number listed below so that additional changes may be discussed.

Respectfully submitted



Edward L. Pencoske  
Reg. No. 29,688  
Thorp Reed & Armstrong, LLP  
One Oxford Centre  
301 Grant Street, 14<sup>th</sup> Floor  
Pittsburgh, PA 15219-1425  
(412) 394-7789

Dated: 21 April 2003

Attorneys for Applicants